



State and Private Forestry Fact Sheet

Hawaii 2023



Investment in State's Cooperative Programs

| Program | FY 2022 Final |
|--|--------------------|
| Community Forestry and Open Space | \$0 |
| Cooperative Lands - Forest Health Management | \$686,258 |
| Forest Legacy | \$1,988,009 |
| Forest Stewardship | \$225,145 |
| Landscape Scale Restoration | \$612,250 |
| State Fire Assistance | \$1,150,000 |
| Urban and Community Forestry | \$500,249 |
| Volunteer Fire Assistance | \$156,120 |
| Total | \$5,318,031 |

NOTE: This funding is for all entities within the state, not just the State Forester's office.

The mission of the Division of Forestry and Wildlife (DOFAW) of the Hawaii Department of Land and Natural Resources (DLNR) is to protect, manage, and restores natural and cultural resources in collaboration with the people of Hawaii. Cooperative forestry programs, administered and implemented through a partnership between the State of Hawaii, U.S. Forest Service, and many other private and government entities help to fulfill DOFAW's mission. DOFAW and its partners work to protect and restore forests to enhance watershed functions, provide habitat for threatened and endangered species, mitigate wildfire threats, and support many other benefits for current and future generations. Additionally, Hawaii's Forest Action Plan (FAP) provides nine priority issues, including: 1) Water Quality and Quantity; 2) Forest Health: Invasive Species, Insects, and Disease; 3) Wildfire; 4) Urban and Community Forestry; 5) Climate Change and Sea Level Rise; 6) Conservation of Native Biodiversity; 7) Hunting, Nature Based Recreation and Tourism; 8) Forest Products and Carbon Sequestration; and 9) U.S. Tropical Island State and Territorial Issues. Consistent with Hawaii's FAP, reversing the trend of natural resource loss by increasing watershed protection, invasive species prevention and control, and restoration of native species has been identified as a target to be achieved by 2030 in the Aloha+ Challenge, a statewide commitment crossing jurisdictions, agencies, sectors, and communities to sustain resources. DOFAW, which manages a quarter of the land in Hawaii, continues to work with partners to enhance the resilience of the State's wildland and urban forests so they are capable of providing the public benefits and ecosystem services upon which our islands depend. Ultimately, forests play a large role in the health of Hawaii's economy, residents, and visitors.

Program Goals

- Reduce the negative impacts of wildfires on native ecosystems, forests, and watersheds as well as communities and the threatened rare habitats near them.
- Provide technical and financial assistance to landowners and long-term leaseholders of privately managed forests.
- Purchase land and develop conservation easements to preserve and restore forested areas that are threatened by development or fragmentation.
- Support teachers in environmental education, offer youth internships, provide volunteer opportunities, and support green jobs.
- Improve the health and viability of urban forests through educational programs, technical and financial assistance, and public/private partnerships.
- Enhance awareness of threats posed by invasive species and continue to collaborate with partners throughout the State and the Pacific islands region to prevent the spread of invasive species.
- Maintain public trails and access roads used for fishing, hiking, camping, and hunting.
- Preserve, enhance, and restore habitat necessary to sustain native species and ecosystems.

- Promote sustainable forest management to generate a variety of forest products and jobs.
- Protect and maintain forested watersheds for water recharge and other ecosystem services.

Key Issues

- Respond to the detection of new fungus killing on of Hawaii's most important forest tree species, ohia, which makes up 50% of all of the forests in Hawaii. The disease, locally referred to Rapid Ohia Death, has affected an estimated 135,000 acres and threatens forest statewide. DOFAW is coordinating with other state, federal, and county agencies to effectively respond to this new disease threat
- The sustainable yield of freshwater depends on the protection of forested watersheds throughout the State and continues to be a priority for forestry. The State of Hawaii has committed to protection of 30% of highest priority watersheds by 2030.
- Preventing and responding to new invasive species that threaten forests in Hawaii, while effectively managing widely established pest species through Integrated Pest Management.
- Fire-tolerant invasive grasses, periods of drought, and land use and population growth trends continue to be a concern for the Fire Management Program. Hawaii is on par with the western states for percentage of land area burned. Enhancing DOFAW's capacity to restore and maintain landscapes, support fire adapted communities, and respond to wildfires will depend largely on its ability to secure funds and strengthen collaborative partnerships across areas of expertise and jurisdictional boundaries.
- Climate change poses current and long-term threats to Hawaii's forests, as well as new opportunities to support large-scale reforestation for carbon sequestration. Threats include: (1) Regional Climate Assessments predict warmer and drier conditions will contribute to declining freshwater supplies and increase the risk of extinctions. (2) Nearly a third of the nation's listed species are found in Hawaii with habitat limited by temperature gradients; as areas warm species habitats may be lost.

Forest Facts and Accomplishments

| Selected Facts | Value | FY 2022 Accomplishments | Value |
|---|--------------|--|--------------|
| Population | 1,455,271 | Landowners Receiving Educational or Technical Assistance | 40 |
| Acres of Forest Land | 1,808,280 | Acres Covered by New or Revised Forest Stewardship Plans | 1,702 |
| Acres of Nonindustrial Private Forest Land | 366,000 | Acres in Important Forest Resource Areas Covered by New or Revised Stewardship Plans | 1,579 |
| Number of NIPF Landowners | 1,782 | Volunteer Fire Departments Assisted | 115 |
| Acres of Federal Land Under State Fire Protection | 0 | State Fire Communities Assisted | 101 |
| Acres of Private Land Under State Fire Protection | 2,300,000 | Coop Forest Health Acres Protected | 547 |
| Number of Rural Fire Departments | 4 | Forest Legacy Project Acquisitions | 0 |
| Cities and Towns | 5 | Communities Provided Urban Forestry Program Assistance | 119 |
| Forest Based Employment | 926 | Population Living in Communities Provided Urban Forestry Program Assistance | 1,307,597 |
| Economic Impact of Forestry (by rank) | 19 | Urban Forestry Volunteer Assistance | 11,256 |
| State Forestry Budget (All Sources) | 53,865,282 | | |

Program Highlights

Conservation Education

In 2022 the Information & Education Section and the district Outreach Specialists finalized a division-wide Communications Strategy that included new mission and vision statements, branding elements and style guides, stakeholder profiles, and templates. The ultimate goal of this process was to empower staff across the division to effectively and consistently communicate with community members about our work. Outreach staff collaborated with the Forestry Program to support additional outreach to potential Forest

Stewardship applicants, to develop remote learning tools about forests including a virtual field trip to the dry forest at Pu'u Wa'awa'a, and provided a workshop series on video production to partners working on outreach related to Rapid Ohia Death. Forestry-related funding also helped support our continued sponsorship of a local youth video contest, for which we received incredible student videos relating to forest health and personal connections to forests. We continued our work with educator training in environmental education and worked with our local Department of Education to provide input on natural resource education standards and content.

Cooperative Fire Protection

The 2022 fire season in Hawaii saw a higher than normal wildland fire incidence, with a large fire on Hawaii island burning 16,800 acres, mostly of native forest on DOFAW lands. West Maui also had a 1,200 acre fire that burned a substantial piece of native forest that was difficult to extinguish due to steep terrain. Hawaii island had four additional fires totalling 445 acres.

On the island of Oahu, Hawaii Wildfire Management Organization begin the process of community meetings for a Community Wildfire Protection Plan for East Honolulu. 28 miles of fuel breaks were maintained. One ignition was controlled and the perimeter was less than .1 acre.

On Kauai, 19.5 miles of fuel break were maintained in high-risk areas on the west side the island.

On Hawaii island, 189.15 miles of fuel break were maintained in high-risk areas of the island. Hawaii Wildfire Management Organization begin the process of community meetings for a Community Wildfire Protection Plan for the Hamakua coast.

On Maui, 22 acres of fuel reduction actions were performed and a Community Wildfire Protection Plan was revised for the community of Kanaio.

Economic Action

Koa (Acacia koa) forests once covered large areas of Hawaii but have been greatly reduced over the past two centuries, primarily due to conversion for other agricultural activities. A number of agricultural enterprises have phased out of their large scale activities leaving behind fallow or underutilized lands. Koa has been envisioned to be an alternative land use option that could provide landowners with an economic return as well as support the ecological benefits of restoring a healthy native forest. Now, thanks to the decades of work on disease resistant and refinement of silvicultural practices, koa is a viable land use option especially as the State looks to encourage diversification of Hawaii's agricultural systems and economy.

Although koa is one of the most valuable hardwoods in the world, land managers are reluctant to invest in large scale planting without examples or economic/financial models to rely on. Partners, including the Division of Forestry and Wildlife, University of Hawaii, Forest Service, and private for-profit and non-profit entries, have identified the development of such a model as an important tool to justify the investment in large-scale tree plantings for both timber and/or carbon markets. A draft model was completed and is being tested and reviewed. Further work on Climate Smart Commodities and Koa will advance in 2023 as the state moves ahead with its climate goals.

Forest Health Protection

Rapid Ohia Death (ROD) continues to be a high priority for natural resource managers in Hawaii. The disease is caused by two recently described fungi in the *Ceratocystis* genus and threatens Hawaii's most important native tree species, *Metrosideros polymorpha*. Project priorities in 2022 were survey and response, diagnostics, research, and public outreach. Research efforts include determining how the pathogen spreads, the role of ambrosia beetles and feral ungulates, genetic fingerprinting to track disease spread, remote sensing for disease detection, efficacy of treatments (e.g., felling and tarping), and developing disease resistant ohia for restoration. The aggressive form of the disease, *C. lukuohia*, has only been found on Hawaii and Kauai islands to date.

The Division continued working with biological control practitioners in the state to promote the release of safe biological control for Hawaii's most damaging invasive species such as miconia, cane tibouchina, *Chromolaena odorata*, and the erythrina gall wasp. These projects are currently undergoing environmental review and permitting, and releases are expected for some projects in 2023. Biological control is the most cost-effective management solution to many of Hawaii's worst forest threats. The Division and its partners are also spreading *Tectococcus ovatus* to control strawberry guava and monitoring its effectiveness in close collaboration with the Forest Service's Institute of Pacific Islands Forestry.

The Division of Forestry and Wildlife worked with the Hawaii Agriculture Research Center to establish a network of disease-resistant koa (*Acacia koa*) seed orchards across the state. A 5-acre seed orchard was recently planted on state land on Oahu. Seed from the orchard to support scaling up reforestation efforts on the island. Similar projects are underway on other islands.

Forest Legacy

The purpose of the Hawaii Forest Legacy Program is to identify environmentally important forestlands and to protect them from conversion to non-forest uses. In doing so, the program facilitates the conservation and preservation of forest product resources, watersheds, wildlife, scenic enjoyment, recreation, cultural and native species resources, and other ecologically important values. DOFAW supports acquisition through the program for conservation purposes and/or sustainable management of forests with the support of land trust/non-profit partners. Specific Forest Legacy projects in Hawaii include assisting the Office of Hawaiian Affairs with the Wao Kele O Puna Forest Reserve (Hawaii Island); holding conservation easements at Kealakekua Heritage Ranch and Kaawaloa Forest (Hawaii Island); addition of Helemano Wilderness Area (Oahu – 2,882 acres fee title) to the state Forest Reserve System; providing monitoring support for U.S. Forest Service conservation easement projects in South Kona (Hawaii Island); and developing community-based, multi-resource management plans for the recently acquired Kamehameui Forest (Maui – 3,434 acres fee title). Due diligence for other pending program acquisitions is underway including; Haloa Aina (Hawaii Island -2800 acres conservation easement), Na Wai Eha (Maui - 5715 acres fee acquisition), Hana Highway Coastal Rainforest (Maui - 395 acres fee title) and two new projects on Oahu (Kaneohe Pali - 948 acres fee title and Maunawili Forest - 672 acres fee title).

Forest Stewardship

The Forest Stewardship Program (FSP) enables private landowners or long-term leaseholders to restore, conserve, and responsibly manage important forest resources that provide vital public and private socioeconomic and environmental benefits. The majority of Hawaii's forests, 66% or 1,155,000 acres of Hawaii's 1,748,000 acres of forestland, is privately owned or managed. By establishing and maintaining the FSP, the State recognizes that public-private partnerships are essential to the present and future health of Hawaii's forests and to the public benefits that they provide. Since the program began in 1990, approximately 73 private landowners have enrolled in the FSP and are conducting forest management activities on over 39,000 acres under agreements spanning 10 or more years. The program provides cost-share assistance for the development of FSP management plans and FSP management plan implementation over the 10-year period, but some landowners commit to maintaining their projects for up to 20 additional years. In Hawaii, the FSP has leveraged over \$16 million in state and private funding to support provided by U.S. Forest Service through the Cooperative Forestry Act over the last thirty years. The Division, through its landowner assistance network, reached over 40 landowners and community groups in the past year, providing them with technical guidance on responsible stewardship of their forest resources. Most participants in the FSP would not have been able to pursue their sustainable and often innovative land-use objectives without the technical and financial assistance made available through this program. With recent cross-sector initiatives, such as the commitment to freshwater security, watershed protection, carbon neutrality, biosecurity, invasive species control, and native species restoration, the program continues to remain relevant through sustainable forest management actions and partnerships.

Hawaii Tree Canopy Viewer Project

- Trees are vital infrastructure that make communities more liveable, healthy, and resilient. In particular, it is the tree canopy coverage that drives ecological, social, and economic benefits. Thus, understanding the extent of existing tree canopy can help communities design and implement management practices to maximize the benefits trees provide.
- To better understand the extent of existing tree canopy coverage, and the relationship between people and tree canopy, the Division of Forestry and Wildlife, the U.S. Forest Service, and NOAA partnered to create Hawaii's first statewide tree canopy viewer. The ESRI viewer offers a downloadable statewide canopy raster layer (created using 1-meter resolution LiDAR and MAXAR Vivid imagery), providing a snapshot of canopy up to 2020. In urban areas, layers with demographic, economic, health, and environmental data are available to compare with the tree canopy layer. For example, by overlaying urban heat severity index with tree canopy, the relationship between temperature and tree canopy can be explored spatially.

- This powerful tool expands our previous understanding of Hawaii's tree canopy and can be used to answer questions such as: where is tree canopy located? is the distribution of tree canopy equitable? Where will tree planting and maintenance have the greatest impact on underserved and overburdened communities? It can also be used to explore where deep-rooted community-based stewardship has promoted canopy and help community partners demonstrate the value of their work.

- Four Hawaii-based Tree Canopy Viewer Fellows have been selected and are currently working with mentors to explore their own unique research questions as related to the tree canopy. They will share their findings this summer in presentations and through community-friendly products.

Landscape Scale Restoration

Sandalwood is renowned for its fragrant, highly valued wood and oil, which has led to exploitation across the Pacific. This LSR funding project will establish seed orchards of Hawaiian sandalwood to produce high-quality, eco- region-specific seed and promote sustainable reforestation and restoration. Orchards will also serve as in-situ genetic conservation sites maximizing project value. Partners are producing ecological seed zones, developing protocols for heartwood oil sampling for select mother trees for the orchards, and have collected seeds for 4 targets Santalum species. Seed orchard sites have been selected and cooperative agreements and logistical planning are ongoing. Three sites have been installed, and two have been partially installed.

Urban and Community Forestry

This year, Hawaii's Urban and Community Forestry program, Kaulunani, focused on education and community outreach - awarding the most community grants ever, with over half going to first-time community partner organizations. Over \$182,800 was awarded in cost-share grants to 18 urban and community forestry projects. Youth education and outreach on the value of trees emerged as the primary thread connecting these projects. For example, the seven Arbor Day Hawaii projects (an annual state-wide event held on the first Saturday in November) engaged youth from local schools, the Girl Scouts, and cultural organizations not only to learn but share the messages. Additionally, these projects engaged more than 250 volunteers, giving over 1600 hours of service to celebrate Hawaii's urban and community forests with their communities. More than 4000 trees found new homes and a suite of educational resources were developed, giving new tree owners the technical tools and confidence to plant and nurture the right tree in the right place. Other youth-focused, educational projects include Building the Next Generation of Tree Stewards, hands-on lessons for elementary students that integrate STEAM, sustainability, and conservation to cultivate aware tree-planting stewards (Pop Up Labs for Sustainability); professional arborist training for high school students as a pathway to connect youth to green jobs in Waianae, Oahu (MA'O Farms); and NiuNow!, a project out of University of Hawaii (West Oahu) growing and promoting cultural agroforestry and food security through the coconut tree (niu). Kaulunani is proud to continue to support projects that educate communities across the islands in meaningful ways. We are honored to invest in opportunities that uplift and support our communities and look forward to increased partnerships as we continue to expand our impact across the state.

Contact Information



Hawaii Division of Forestry & Wildlife

David G Smith
State Forester
 1151 Punchbowl Street, Room 325
 Honolulu, HI 96813
 808-587-0166
David.G.Smith@hawaii.gov

US Forest Service Pacific Southwest Region

Kathleen Stearns Friday
Forest Legacy/Stewardship Program Manager
 USDA Forest Service
 1323 Club Drive
 Vallejo, CA 94592
 808-785-5197
kathleen.friday@usda.gov
